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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,883	03/31/2004	Kevin J. Orvek	10559-932001	7571
20985	7590	03/31/2006	EXAMINER	
FISH & RICHARDSON, PC P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			STARK, JARRETT J	
			ART UNIT	PAPER NUMBER
			2823	

DATE MAILED: 03/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/814,883

Applicant(s)

ORVEK, KEVIN J.

Examiner

Jarrett J. Stark

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,7,9-12 and 14-16 is/are rejected.
- 7) ☒ Claim(s) 3,5,6,8,13,17 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of group I, claims 1-18 in the reply filed on 3/16/2006 is acknowledged.

Claim Objections

Claims 3,5,6,8,13,17, & 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "critical pitch" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

From the specs, drawing, and claims it is unclear what a "critical pitch" is. From the standard definition, pitch can be interpreted as:

- slope: be at an angle;
- degree of deviation from a horizontal plane;
- the center-to-center spacing

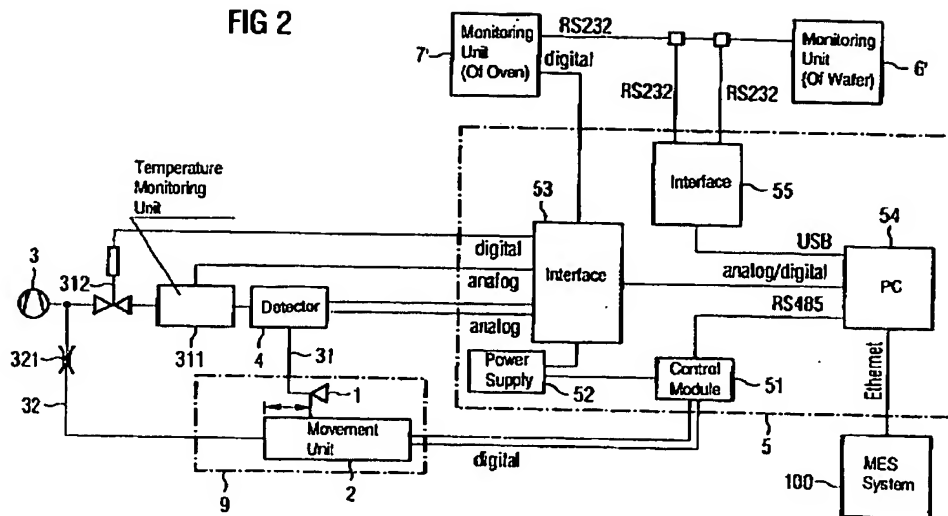
Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate

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prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

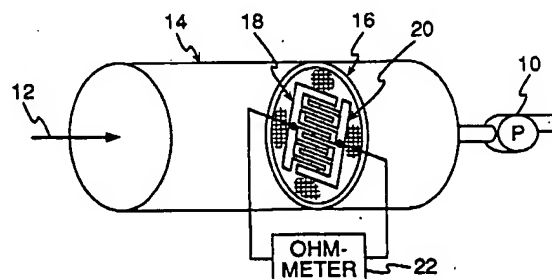
Claims 1,2,4,7,9-12,14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Storbeck et al. (US 6,928,892) in view of Shah (US 5,247,827).



Regarding claim 1, Storbeck discloses an apparatus comprising: an vacuum chamber containing a particle detecting integrated circuit. (Storbeck, Figure 2-ref# [4] & Abstract)

Storbeck discloses a particle detector however, does not expressly disclose the particle detecting integrated circuit including a device having a pair of exposed conductive lines spaced at a critical pitch corresponding to particles of interest.

Shah discloses the particle detecting integrated circuit including a device having a pair of exposed conductive lines spaced at a critical pitch corresponding to particles of interest. (Shah, Figure 1)



The two references are analogous art because they are from a similar problem solving area of particle detection inside a semiconductor processing chamber during manufacturing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a particle detector with two exposed electrodes to detect particles inside the chamber. Therefore, it would have been obvious to combine Storbeck with Shah to obtain the invention as specified. (Shah, Col. 1, 62-66)

In semiconductor fabrication, contamination, for example by particles or foreign substances, constitutes a great risk with the consequences of reducing the quality and total failure of the electronic components. (Storbeck, Col. 1, 15-18)

The invention may be summarized as a method and apparatus for detecting the conductivity of particulate matter, such as dust, carried in air or other gases. Air is pumped through a filter having a mesh size sufficiently small to filter out the particles. An interdigitated electrode structure is formed on the upstream side of the filter. The conductivity of the dust is determined by measuring the electrical resistance between the electrodes. (Shah, Col. 1, 62-66)

Regarding claim 2, Storbeck in view of Shah, discloses the apparatus of claim 1 further comprising a computer system linked to the particle detecting integrated circuit. (Storbeck, Col. 8, 34-43)

Regarding claim 4, Storbeck in view of Shah, discloses the apparatus of claim 1 wherein the particle detecting integrated circuit includes a plurality of devices. (Shah, Figure 1)

Regarding claim 7, Storbeck in view of Shah, discloses the apparatus of claim 2 wherein the computer system detects a change in current when a metallic particle shorts the pair of exposed conductive lines.

It is inherent that a metallic (conductive) particle comes in contact with two previously electronically isolated electrodes, the metallic particle will create a path for an electrical current which will "short" the conductive lines.

Regarding claim 9, Storbeck in view of Shah, discloses an apparatus comprising: a mask stage in a vacuum chamber of semiconductor processing equipment; a particle detecting integrated circuit embedded in the mask stage (Storbeck, Figure 2-ref# [4] & Abstract)

The particle detecting integrated circuit containing a device having a pair of conductive lines exposed to a local vacuum environment, the pair of lines spaced at a critical pitch corresponding to particles of interest. (Shah, Figure 1)

Regarding claim 10, Storbeck in view of Shah, discloses the apparatus of claim 9 further comprising a computer system linked to the particle detecting integrated circuit. (Storbeck, Col. 8, 34-43)

Regarding claim 11, Storbeck in view of Shah, discloses the apparatus of claim 10 wherein the pair of conductive lines have an applied voltage. (Shah, Figure 1- Ohm meter)

Regarding claim 12, Storbeck in view of Shah, discloses the apparatus of claim 11 wherein the computer system detects a change in current when a metallic particle shorts the pair of conductive lines. (Shah, Figure 1- Ohm meter- zero resistance)

Regarding claim 14, Storbeck in view of Shah, discloses the apparatus of claim 10 wherein the computer system is semiconductor component circuitry.

It is inherent that computer systems are "semiconductor component circuitry"
EXAMPLES: the computer's CPU and memory are semiconductor component circuitry, with out them there is no computer.

Regarding claim 15, Storbeck in view of Shah, discloses the apparatus of claim 1Q wherein the computer system is off-chip circuitry. . (Storbeck, Figure 2-ref# [54])

Regarding claim 16, Storbeck in view of Shah, discloses the apparatus of claim 9 wherein the particle detecting integrated circuit comprises a plurality of devices.
(Shah, Figure 1)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jarrett J. Stark whose telephone number is (571) 272-6005. The examiner can normally be reached on Monday - Thursday 7:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on (571) 272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JJS

March 27, 2006 S



W. DAVID COLEMAN
PRIMARY EXAMINER